

THE LARVA OF CYLINDROCOPTURUS CRASSUS  
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Since this weevil is a pest in flower gardens and is most likely to be noted as such in the larval state, it seems advisable to attempt a partial description in connection with that of the adult to aid in future determination. These notes on the external morphology are not intended to be complete but are a series of remarks and figures to give the larva a taxonomic status.

Infested chrysanthemum plants were sent to the Department of Agriculture at Sacramento on August 8, 1929, from some locality in San Mateo County by A. W. Tate, Jr. It was immediately noted that several small weevil larvæ in each stalk had girdled the plant just under the bark at or immediately below the ground line. On examining these stalks in the latter part of November 1929, it appeared that the larvæ had formed small cells under the outer integument of the stem, pupated, and transformed to adults.

The larva (Fig. 1) of this species will tentatively run to the *Cylindrocopturini* in Boving's key (see ref.) The spiracles are as stated, but there is no posterior conical projection from the ninth tergum of the abdomen. There is, however, a small eyelike spot on each side of the head which is apparently within the head capsule, but does not correspond to the eyelike spot referred to in the above-mentioned key.

This *Cylindrocopturus* larva is approximately 5 mm. long. Its general shape is cylindrical, cyrtosomatic, tapering very little. The color is white and the hairs are not apparent, even under a binocular microscope, with the exception of a few posterior dorsal setæ. The position of these setæ could only be determined from stained mounts.

The head is light yellowish brown, elongate oval, four-fifths as wide as long, at least half retracted into the prothorax. Conspicuous whitish areas appear above: on the posterior half of the frons (Fig. 2, *f*); a rather wide longitudinal area near and parallel to the epicranial suture on each side. The frons is a little over half as long as the epicranial suture; it is longer than wide and ends posteriorly in an acute angle. The frontal carina (Fig. 1, *car*) is very distinct, about one-third the length of the frons. The frons has five setæ and two sensory spots on each side. The epicranium (Fig. 1, *ep*) and

frons are at all places distinct. The epicranial setæ are crowded forward due to the position of the prothorax; apparently nine anterior setæ, five sensory spots (one back within the prothorax), and four posterior minute setæ on each side of the head. The antennal lobe (Fig. 2, *b*) is small and located near the mandible at the suture separating the frons from the epicranium; the second segment is very reduced, anteriorly placed on the first segment; five sensory papillæ are posteriorly placed on the first segment. The ocellus (Fig. 2, *o*) is just posterior to the antenna and not pigmented. The mandibles are not large or prominent, have no definite teeth, but a rather wide grinding surface, and two small setæ. The maxillary mala (Fig. 2, *a*) tends to be flattened apically and has eleven stout setæ, the inner seven or eight bladelike. The epipharyngeal rods are subparallel and narrow, broadly joined posteriorly.

The body integument is generally covered with posteriorly projecting spinules. These spinules vary in size and number according to location. On the body in general they are comparatively small and arranged in almost scattered rows (Fig. 1, *d*). Notable exceptions to this are found on the prothorax and the last few abdominal sterna. On the prothorax a transverse band crosses the posterior part of the tergum (Fig. 1, *b*), where these small spines are crowded and large; more or less dense areas also recur on the pleura and the sternum of this segment. On the abdomen this condition also occurs on the last three abdominal sterna (Fig. 1, *g*).

The areas of the body are not very different from the majority of described weevil larvæ in regard to the number and position of the setæ. The prothoracic shield (Fig. 1, *psh*) is rather large, with ten conspicuous setæ on each side of the tergum. The terga of the other two thoracic segments are divided into the prescutum (Fig. 1, *prs*) and scuto-scutellum (*scl*), with one and four setæ respectively on each side. The alar area of each of these last two segments has one seta which is directly below and in line with the scuto-scutellar setæ. On the thoracic epipleura (Fig. 1, *epi*, *pre*) the prothorax shows no setæ; the mesothorax has two on the pre-epipleurum (*pre*) and two are on the metathorax. The hypopleurum of the prothorax has two setæ, with one each on the corresponding area of the other two segments (Fig. 1, *hyp*). The coxal lobes (*cx*) are inclined to be prominent and have six setæ. There is one seta on each side of the thoracic eusterna (*eus*).

Of the abdomen the first seven segments are alike. The tergum of each shows four areas; the prescutum (*prs*) with one seta on each side, the scutum (*sc*), the scutellum (*scl*) with five setæ, and the postscutellum (small and lateral) not attaining the dorsum (*pscl*). Two alar setæ are just above each spiracle. The epipleura (*epi*) and hypopleura (*hyp*) are rather elongate, each of one lobe; they are separated by a very distinct ventrolateral suture and have two setæ

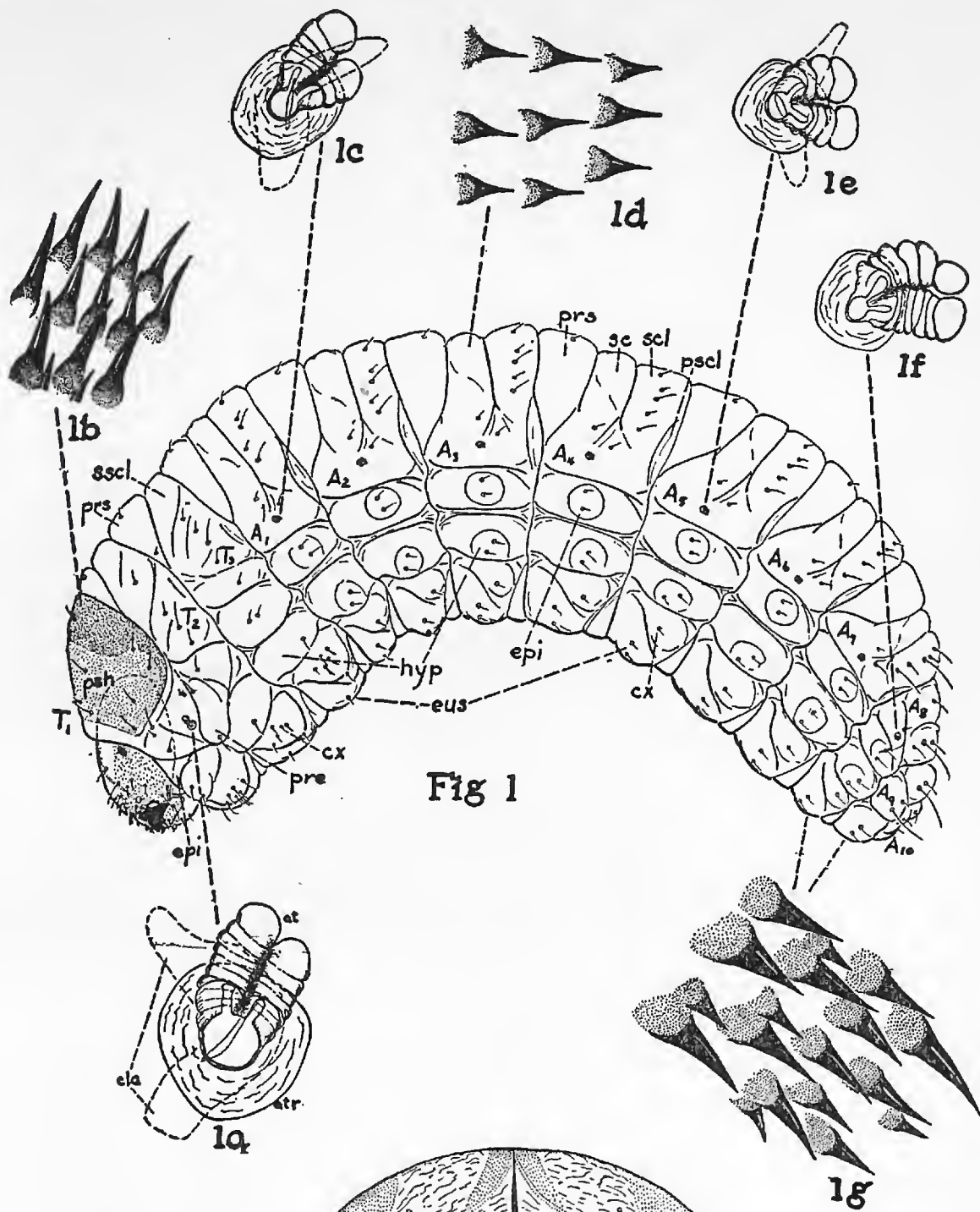


Fig 1

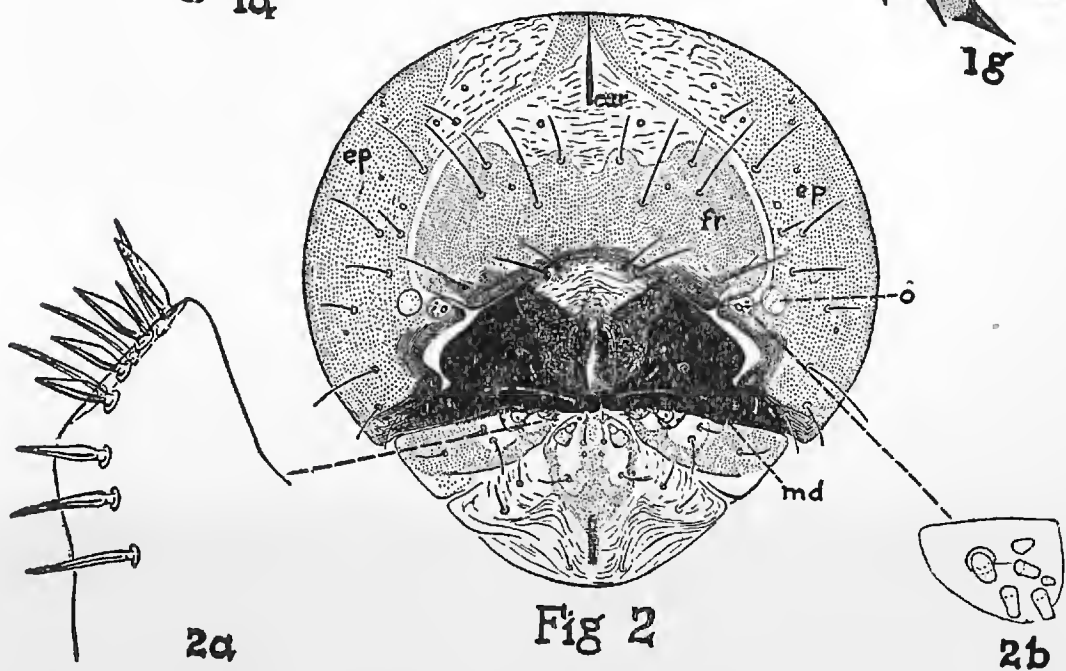


Fig 2



each. The parasterna (*cx*) have one seta each. The eusterna (*eus*) have a pair of setæ on each side. A poststernellum is indicated on each segment. The eighth segment ( $A_8$ ) is like the preceding except that it has but two tergal areas, and one and three setæ on each lobe, respectively. The ninth ( $A_9$ ) is still further reduced, with two dorsal, two lateral, and two ventral setæ on one side. The tenth ( $A_{10}$ ) is very reduced, with two setæ on each side.

The spiracles (Fig. 1, *a*; 1, *c*; 1, *e*; 1, *f*) are bifore, the air tubes extending well beyond the atrium (Fig. 1, *a*, *atr*). The air tubes (*at*) are annulate, with the anterior (or dorsal) tube usually longer and somewhat curved onto the other. The mesothoracic spiracle (Fig. 1, *a*) is largest, the air tubes (*at*) point dorsally and somewhat posteriorly, the anterior tube has six or seven annulæ, the posterior tube with four or five. The abdominal spiracles are generally smaller. The first (Fig. 1, *c*) is inclined more posteriorly than the mesothoracic, with four or five annulæ on the anterior tube and three or four on the posterior. The fifth (Fig. 1, *e*) points directly posteriorly (horizontal to the body) with about the same number of annulæ on each tube. The eighth (Fig. 1, *f*) is somewhat larger than the average and has about as many annulæ as the mesothoracic spiracle, with more on the ventral tube.

#### REFERENCE

Boving, A. E.: Immature Stages of *Eumycterus* (?) *saccharidis* Barber, with comments on the classification of the tribe Barini (Coleoptera; Curculionidæ), Proc. Ent. Soc. Wash., Vol. 29, p. 151, 1927.

#### THE PLATE

Figure 1—Larvæ of *Cylindrocopturus crassus* Van Dyke;  $A_1$  to  $A_{10}$  abdominal segments; *cx*, coxal or parasternal lobes; *epi*, epipleurum; *eus*, eusternum; *hyp*, hypopleurum; *pre*, preëpipleurum; *prs*, pre-scutum; *pscl*, postscutellum; *pah*, prothoracic shield; *sc*, scutum; *scl*, scutellum; *sscl*, scuto-scutellum;  $T_1$ ,  $T_2$ ,  $T_3$ , thoracic segments.

Figure 1, *a*—Mesothoracic spiracle; *at*, air tubes; *atr*, atrium; *cla*, closing apparatus. Figure 1, *b*—Spinules of prothoracic tergum. Figure 1, *c*—First abdominal spiracle. Figure 1, *d*—Spinules as found on the body in general. Figure 1, *e*—Fifth abdominal spiracle. Figure 1, *f*—Eighth abdominal spiracle. Figure 1, *g*—Spinules as on the last two or three abdominal sterna.

Figure 2—Anterior view of head; *car*, median frontal carina; *ep*, epicranium; *fr*, frons; *md*, mandible; *o*, ocellus. Figure 2, *a*—Ental view of right maxillary mala. Figure 2, *b*—Antenna: the first segment is the basal part, the second segment is to the left, the sensory papillæ are on the right.